

GLU	PRO	LEU	ASP	ASP	TYR	VAL	ASN	THR	GLN	GLY	ALA	SER	LEU	PHE	1	5	10	15
SER	VAL	THR	LYS	LYS	GLN	LEU	GLY	ALA	GLY	SER	ILE	GLU	GLU	CYS	20	25	30	
ALA	ALA	LYS	CYS	GLU	GLU	ASP	GLU	GLU	PHE	THR	CYS	ARG	ALA	PHE	35	40	45	
GLN	TYR	HIS	SER	LYS	GLU	GLN	GLN	CYS	VAL	ILE	MET	ALA	GLU	ASN	50	55	60	
ARG	LYS	SER	SER	ILE	ILE	ILE	ARG	MET	ARG	ASP	VAL	VAL	LEU	PHE	65	70	75	
GLU	LYS	LYS	VAL	TYR	LEU	SER	GLU	CYS	LYS	THR	GLY	ASN	GLY	LYS	80	85	90	
ASN	TYR	ARG	GLY	THR	MET	SER	LYS	THR	LYS	ASN	GLY	ILE	THR	CYS	95	100	105	
GLN	LYS	TRP	SER	SER	THR	SER	PRO	HIS	ARG	PRO	ARG	PHE	SER	PRO	110	115	120	
ALA	THR	HIS	PRO	SER	GLU	GLY	LEU	GLU	GLU	ASN	TYR	CYS	ARG	ASN	125	130	135	
PRO	ASP	ASN	ASP	PRO	GLN	GLY	PRO	TRP	CYS	TYR	THR	THR	ASP	PRO	140	145	150	
GLU	LYS	ARG	TYR	ASP	TYR	CYS	ASP	ILE	LEU	GLU	CYS	GLU	GLU	GLU	155	160	165	
CYS	MET	HIS	CYS	SER	GLY	GLU	ASN	TYR	ASP	GLY	LYS	ILE	SER	LYS	170	175	180	
THR	MET	SER	GLY	LEU	GLU	CYS	GLN	ALA	TRP	ASP	SER	GLN	SER	PRO	185	190	195	
HIS	ALA	HIS	GLY	TYR	ILE	PRO	SER	LYS	PHE	PRO	ASN	LYS	ASN	LEU	200	205	210	
LYS	LYS	ASN	TYR	CYS	ARG	ASN	PRO	ASP	ARG	GLU	LEU	ARG	PRO	TRP	215	220	225	
CYS	PHE	THR	THR	ASP	PRO	ASN	LYS	ARG	TRP	GLU	LEU	CYS	ASP	ILE	230	235	240	
PRO	ARG	CYS	THR	THR	PRO	PRO	PRO	SER	SER	GLY	PRO	THR	TYR	GLN	245	250	255	
CYS	LEU	LYS	GLY	THR	GLY	GLU	ASN	TYR	ARG	GLY	ASN	VAL	ALA	VAL	260	265	270	

FIG. 1A

THR	VAL	SER	GLY	HIS	THR	CYS	GLN	HIS	TRP	SER	ALA	GLN	THR	PRO	275	280	285
HIS	THR	HIS	ASN	ARG	THR	PRO	GLU	ASN	PHE	PRO	CYS	LYS	ASN	LEU	290	295	300
ASP	GLU	ASN	TYR	CYS	ARG	ASN	PRO	ASP	GLY	LYS	ARG	ALA	PRO	TRP	305	310	315
CYS	HIS	THR	THR	ASN	SER	GLN	VAL	ARG	TRP	GLU	TYR	CYS	LYS	ILE	320	325	330
PRO	SER	CYS	ASP	SER	SER	PRO	VAL	SER	THR	GLU	GLN	LEU	ALA	PRO	335	340	345
THR	ALA	PRO	PRO	GLU	LEU	THR	PRO	VAL	VAL	GLN	ASP	CYS	TYR	HIS	350	355	360
GLY	ASP	GLY	GLN	SER	TYR	ARG	GLY	THR	SER	SER	THR	THR	THR	THR	365	370	375
GLY	LYS	LYS	CYS	GLN	SER	TRP	SER	SER	MET	THR	PRO	HIS	ARG	HIS	380	385	390
GLN	LYS	THR	PRO	GLU	ASN	TYR	PRO	ASN	ALA	GLY	LEU	THR	MET	ASN	395	400	405
TYR	CYS	ARG	ASN	PRO	ASP	ALA	ASP	LYS	GLY	PRO	TRP	CYS	PHE	THR	410	415	420
THR	ASP	PRO	SER	VAL	ARG	TRP	GLU	TYR	CYS	ASN	LEU	LYS	LYS	CYS	425	430	435
SER	GLY	THR	GLU	ALA	SER	VAL	VAL	ALA	PRO	PRO	PRO	VAL	VAL	LEU	440	445	450
LEU	PRO	ASP	VAL	GLU	THR	PRO	SER	GLU	GLU	ASP	CYS	MET	PHE	GLY	455	460	465
ASN	GLY	LYS	GLY	TYR	ARG	GLY	LYS	ARG	ALA	THR	THR	VAL	THR	GLY	470	475	480
THR	PRO	CYS	GLN	ASP	TRP	ALA	ALA	GLN	GLU	PRO	HIS	ARG	HIS	SER	485	490	495
ILE	PHE	THR	PRO	GLU	THR	ASN	PRO	ARG	ALA	GLY	LEU	GLU	LYS	ASN	500	505	510
TYR	CYS	ARG	ASN	PRO	ASP	GLY	ASP	VAL	GLY	GLY	PRO	TRP	CYS	TYR	515	520	525
THR	THR	ASN	PRO	ARG	LYS	LEU	TYR	ASP	TYR	CYS	ASP	VAL	PRO	GLN	530	535	540

FIG.1B

CYS	ALA	ALA	PRO	SER	PHE	ASP	CYS	GLY	LYS	PRO	GLN	VAL	GLU	PRO	545	550	555
LYS	LYS	CYS	PRO	GLY	ARG	VAL	VAL	GLY	GLY	CYS	VAL	ALA	HIS	PRO	560	565	570
HIS	SER	TRP	PRO	TRP	GLN	VAL	SER	LEU	ARG	THR	ARG	PHE	GLY	MET	575	580	585
HIS	PHE	CYS	GLY	GLY	THR	LEU	ILE	SER	PRO	GLU	TRP	VAL	LEU	THR	590	595	600
ALA	ALA	HIS	CYS	LEU	GLU	LYS	SER	PRO	ARG	PRO	SER	SER	TYR	LYS	605	610	615
VAL	ILE	LEU	GLY	ALA	HIS	GLN	GLU	VAL	ASN	LEU	GLU	PRO	HIS	VAL	620	625	630
GLN	GLU	ILE	GLU	VAL	SER	ARG	LEU	PHE	LEU	GLU	PRO	THR	ARG	LYS	635	640	645
ASP	ILE	ALA	LEU	LEU	LYS	LEU	SER	SER	PRO	ALA	VAL	ILE	THR	ASP	650	655	660
LYS	VAL	ILE	PRO	ALA	CYS	LEU	PRO	SER	PRO	ASN	TYR	VAL	VAL	ALA	665	670	675
ASP	ARG	THR	GLU	CYS	PHE	ILE	THR	GLY	TRP	GLY	GLU	THR	GLN	GLY	680	685	690
THR	PHE	GLY	ALA	GLY	LEU	LEU	LYS	GLU	ALA	GLN	LEU	PRO	VAL	ILE	695	700	705
GLU	ASN	LYS	VAL	CYS	ASN	ARG	TYR	GLU	PHE	LEU	ASN	GLY	ARG	VAL	710	715	720
GLN	SER	THR	GLU	LEU	CYS	ALA	GLY	HIS	LEU	ALA	GLY	GLY	THR	ASP	725	730	735
SER	CYS	GLN	GLY	ASP	SER	GLY	GLY	PRO	LEU	VAL	CYS	PHE	GLU	LYS	740	745	750
ASP	LYS	TYR	ILE	LEU	GLN	GLY	VAL	THR	SER	TRP	GLY	LEU	GLY	CYS	755	760	765
ALA	ARG	PRO	ASN	LYS	PRO	GLY	VAL	TYR	VAL	ARG	VAL	SER	ARG	PHE	770	775	780
VAL	THR	TRP	ILE	GLU	GLY	VAL	MET	ARG	ASN	ASN					785	790	

(SEQ ID NO:1)

FIG.1C

					1					5					10
Human	(SEQ ID NO:2)	VAL	ALA	PRO	PRO	PRO	VAL	VAL	LEU	LEU	PRO				
Mouse	(SEQ ID NO:8)	---	GLU	LEU	---	THR	---	SER	GLN	GLU	---				
Monkey	(SEQ ID NO:9)	ALA	---	---	---	---	---	ALA	GLN	---	---				
Bovine	(SEQ ID NO:10)	PRO	---	ALA	---	ooo	ooo	ooo	GLN	ALA	---				
Porcine	(SEQ ID NO:11)	THR	ASN	PHE	---	ALA	ILE	ALA	GLN	VAL	---				
					15					20					
Human	ASP	VAL	GLU	THR	PRO	SER	GLU	GLU	ASP	CYS	MET	PHE	GLY	ASN	
Mouse	SER	GLY	PRO	SER	ASP	---	---	THR	---	---	---	TYR	---	---	
Monkey	---	ALA	---	---	---	---	---	---	---	---	---	---	---	---	
Bovine	GLY	---	---	ASN	---	PRO	---	ALA	---	---	---	ILE	---	THR	
Porcine	SER	---	---	ASP	LEU	---	---	ooo	---	---	---	---	---	---	
					25					30					35
Human	GLY	LYS	GLY	TYR	ARG	GLY	LYS	ARG	ALA	THR	THR	VAL	THR	GLY	
Mouse	---	---	ASP	---	---	---	---	THR	---	VAL	---	ALA	ALA	---	
Monkey	---	---	---	---	---	---	---	LYS	---	---	---	---	---	---	
Bovine	---	---	SER	---	---	---	---	LYS	---	---	---	---	ALA	---	
Porcine	---	---	ARG	---	---	---	---	---	---	---	---	---	ALA	---	
					40					45					50
Human	THR	PRO	CYS	GLN	ASP	TRP	ALA	ALA	GLN	GLU	PRO	HIS	ARG	HIS	
Mouse	---	---	---	---	GLY	---	---	---	---	---	---	---	---	---	
Monkey	---	---	---	---	GLU	---	---	---	---	---	---	---	SER	---	
Bovine	VAL	---	---	---	GLU	---	---	---	---	---	---	---	HIS	---	
Porcine	VAL	---	---	---	GLU	---	---	---	---	---	---	---	---	---	
					55					60					65
Human	SER	ILE	PHE	THR	PRO	GLU	THR	ASN	PRO	ARG	ALA	GLY	LEU	GLU	
Mouse	---	---	---	---	---	GLN	---	---	---	---	---	---	---	---	
Monkey	ARG	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bovine	---	---	---	---	---	---	---	---	---	GLN	SER	---	---	---	
Porcine	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
					70					75					80
Human	LYS	ASN	TYR	CYS	ARG	ASN	PRO	ASP	GLY	ASP	VAL	GLY	GLY	PRO	
Mouse	---	---	---	---	---	---	---	---	---	---	---	ASN	---	---	
Monkey	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bovine	ARG	---	---	---	---	---	---	---	---	---	---	ASN	---	---	
Porcine	---	---	---	---	---	---	---	---	---	---	ASP	ASN	---	---	

FIG.2A

					85					90				
Human	TRP	CYS	TYR	THR	THR	ASN	PRO	ARG	LYS	LEU	TYR	ASP	TYR	CYS
Mouse	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Monkey	---	---	---	---	---	---	---	---	---	---	PHE	---	---	---
Bovine	---	---	---	---	MET	---	---	---	---	---	PHE	---	---	---
Porcine	---	---	---	---	---	---	---	GLN	---	---	PHE	---	---	---

		95					100		101
Human	ASP	VAL	PRO	GLN	CYS	ALA	ooo	ALA	
Mouse	---	ILE	---	LEU	---	---	SER	---	
Monkey	---	---	---	---	---	---	ooo	---	
Bovine	---	---	---	---	---	GLU	ooo	ooo	
Porcine	---	---	---	---	---	VAL	ooo	THR	

FIG.2B

1 CATCCTGGGA TTGGGACCCA CTTTCTGGGC ACTGCTGGCC AGTCCCAAAA  
51 TGGAACATAA GGAAGTGGTT CTTCTACTTC TTTTATTTCT GAAATCAGGT  
101 CAAGGAGAGC CTCTGGATGA CTATGTGAAT ACCCAGGGGG CTTCACTGTT  
151 CAGTGTCACT AAGAAGCAGC TGGGAGCAGG AAGTATAGAA GAATGTGCAG  
201 CAAAATGTGA GGAGGACGAA GAATTCACCT GCAGGGCATT CCAATATCAC  
251 AGTAAAGAGC AACAAATGTGT GATAATGGCT GAAAACAGGA AGTCCTCCAT  
301 AATCATTAGG ATGAGAGATG TAGTTTTATT TGAAAAGAAA GTGTATCTCT  
351 CAGAGTGCAA GACTGGGAAT GGAAAGAACT ACAGAGGGAC GATGTCCAAA  
401 ACAAAAAATG GCATCACCTG TCAAAAATGG AGTTCCACTT CTCCCCACAG  
451 ACCTAGATTC TCACCTGCTA CACACCCCTC AGAGGGACTG GAGGAGAACT  
501 ACTGCAGGAA TCCAGACAAC GATCCGCAGG GGCCCTGGTG CTATACTACT  
551 GATCCAGAAA AGAGATATGA CTA CTGCGAC ATTCTTGAGT GTGAAGAGGA  
601 ATGTATGCAT TGCAGTGGAG AAAACTATGA CGGCAAAATT TCCAAGACCA  
651 TGTCTGGACT GGAATGCCAG GCCTGGGACT CTCAGAGCCC ACACGCTCAT  
701 GGATACATTC CTTCCAAATT TCCAAACAAG AACCTGAAGA AGAATTACTG  
751 TCGTAACCCC GATAGGGAGC TGCGGCCTTG GTGTTTCACC ACCGACCCCA  
801 ACAAGCGCTG GGAACTTTGT GACATCCCCC GCTGCACAAC ACCTCCACCA  
851 TCTTCTGGTC CCACCTACCA GTGTCTGAAG GGAACAGGTG AAAACTATCG  
901 CGGGAATGTG GCTGTTACCG TGTCGGGGCA CACCTGTCAG CACTGGAGTG  
951 CACAGACCCC TCACACACAT AACAGGACAC CAGAAAAC TT CCCCTGCAAA  
1001 AATTTGGATG AAAACTACTG CCGCAATCCT GACGGAAAAA GGGCCCCATG  
1051 GTGCCATACA ACCAACAGCC AAGTGCGGTG GGAGTACTGT AAGATACCGT  
1101 CCTGTGACTC CTCCCCAGTA TCCACGGAAC AATTGGCTCC CACAGCACCA  
1151 CCTGAGCTAA CCCCTGTGGT CCAGGACTGC TACCATGGTG ATGGACAGAG  
1201 CTACCGAGGC ACATCCTCCA CCACCACCAC AGGAAAGAAG TGTCAGTCTT  
1251 GGTCATCTAT GACACCACAC CGGCACCAGA AGACCCAGAA AACTACCCA

FIG.3A

1301 AATGCTGGCC TGACAATGAA CTA CTG CAGG AATCCAGATG CCGATAAAGG  
1351 CCCCTGGTGT TTTACCACAG ACCCCAGCGT CAGGTGGGAG TACTGCAACC  
1401 TGAAAAAATG CTCAGGAACA GAAGCGAGTG TTGTAGCACC TCCGCCTGTT  
1451 GTCCTGCTTC CAGATGTAGA GACTCCTTCC GAAGAAGACT GTATGTTTGG  
1501 GAATGGGAAA GGATACCGAG GCAAGAGGGC GACCACTGTT ACTGGGACGC  
1551 CATGCCAGGA CTGGGCTGCC CAGGAGCCCC ATAGACACAG CATTTTCACT  
1601 CCAGAGACAA ATCCACGGGC GGGTCTGGAA AAAAATTACT GCCGTAACCC  
1651 TGATGGTGAT GTAGGTGGTC CCTGGTGCTA CACGACAAAT CCAAGAAAAC  
1701 TTTACGACTA CTGTGATGTC CCTCAGTGTG CGGCCCCCTC ATTTGATTGT  
1751 GGGGAAGCCTC AAGTGGAGCC GAAGAAATGT CCTGGAAGGG TTGTAGGGGG  
1801 GTGTGTGGCC CACCCACATT CCTGGCCCTG GCAAGTCAGT CTTAGAACAA  
1851 GGTTTGGAAT GCACTTCTGT GGAGGCACCT TGATATCCCC AGAGTGGGTG  
1901 TTGACTGCTG CCCACTGCTT GGAGAAGTCC CCAAGGCCTT CATCCTACAA  
1951 GGTGATCCTG GGTGCACACC AAGAAGTGAA TCTCGAACCG CATGTTCAAG  
2001 AAATAGAAGT GTCTAGGCTG TTCTTGGAGC CCACACGAAA AGATATTGCC  
2051 TTGCTAAAGC TAAGCAGTCC TGCCGTCATC ACTGACAAAG TAATCCCAGC  
2101 TTGTCTGCCA TCCCCAAATT ATGTGGTCGC TGACCGGACC GAATGTTTCG  
2151 TCACTGGCTG GGGAGAAACC CAAGGTACTT TTGGAGCTGG CCTTCTCAAG  
2201 GAAGCCCAGC TCCCTGTGAT TGAGAATAAA GTGTGCAATC GCTATGAGTT  
2251 TCTGAATGGA AGAGTCCAAT CCACCGAACT CTGTGCTGGG CATTTGGCCG  
2301 GAGGCACTGA CAGTTGCCAG GGTGACAGTG GAGGTCCTCT GGTTTGCTTC  
2351 GAGAAGGACA AATACATTTT ACAAGGAGTC ACTTCTTGGG GTCTTGGCTG  
2401 TGCACGCCCC AATAAGCCTG GTGTCTATGT TCGTGTTTCA AGGTTTGTTA  
2451 CTTGGATTGA GGGAGTGATG AGAAATAATT AATTGGACGG GAGACAG

(SEQ ID NO:12)

**FIG.3B**

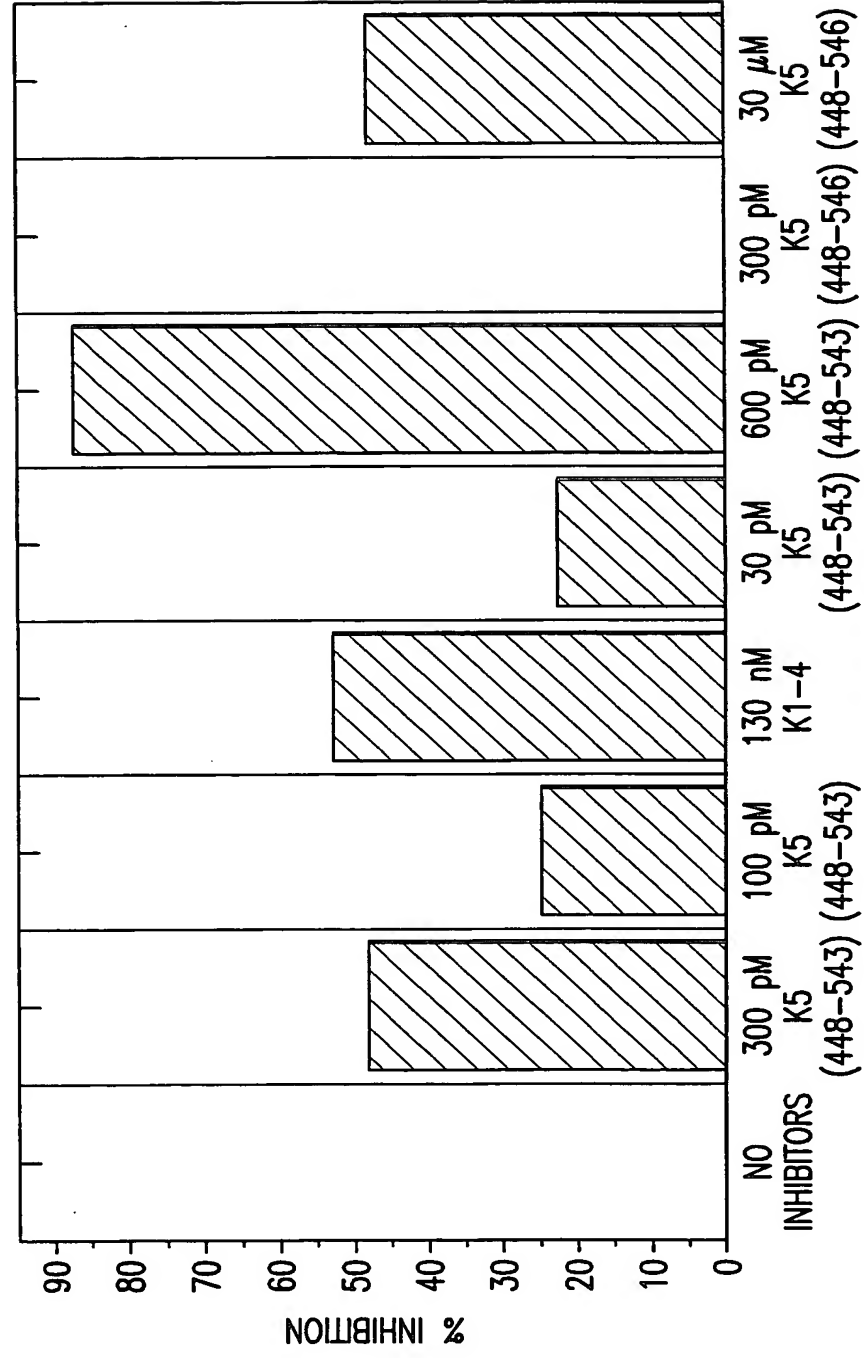
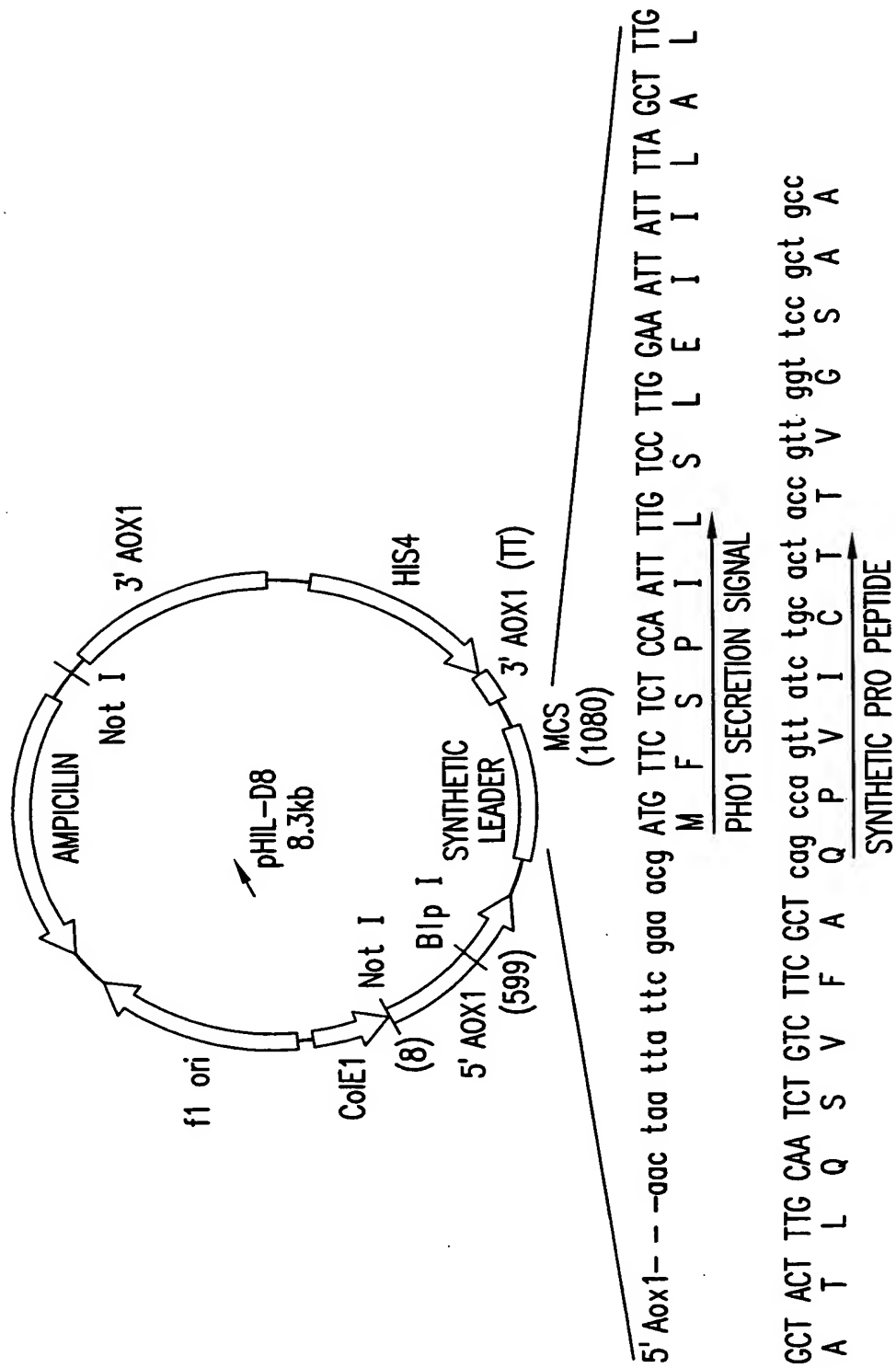


FIG.4





*BamH I* *Rsr II* *Xho I* *Eco RI*  
gag gga tcc cgg acc gct cga gga att cgc ctt aga --- 3'T  
E G S

**FIG.5**

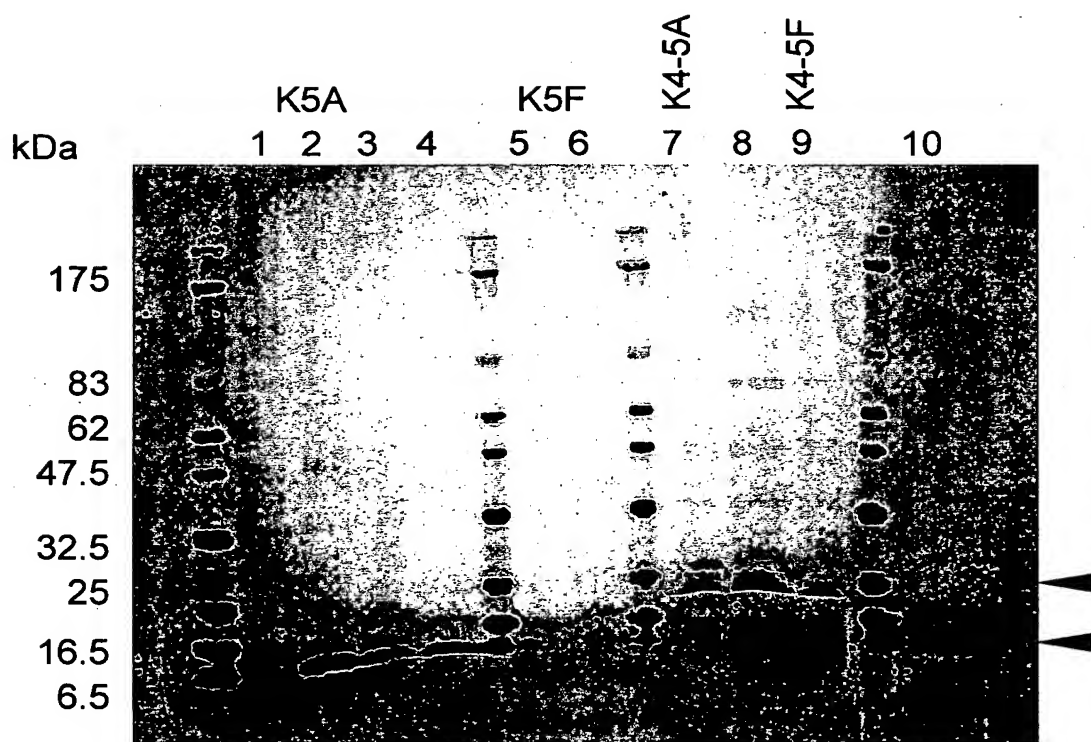


FIG.6

BEST AVAILABLE COPY

BEST AVAILABLE COPY

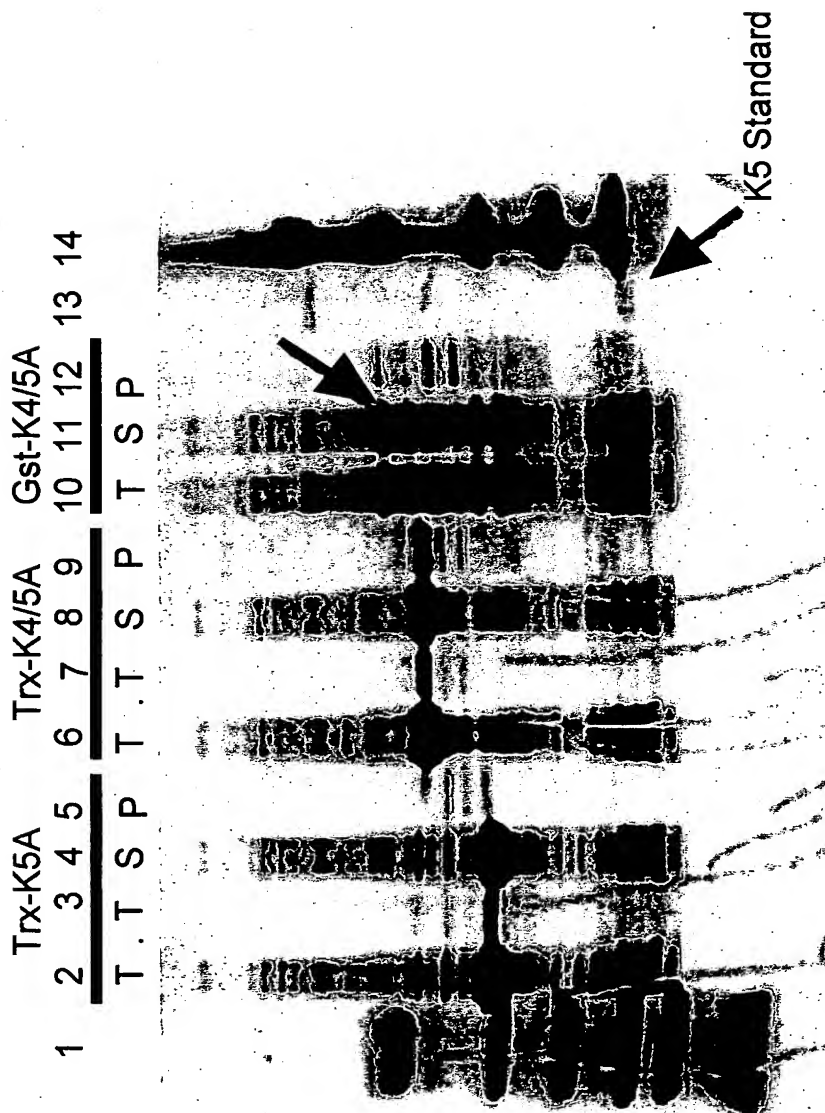


FIG.7

BEST AVAILABLE COPY

BEST AVAILABLE COPY